

MICROFILM STANDARDS

**PUBLIC RECORDS
ADMINISTRATION**

OFFICE OF THE SECRETARY OF STATE

RHODE ISLAND STATE ARCHIVES &
PUBLIC RECORDS ADMINISTRATION

INTRODUCTION

On December 9, 1987, the Public Records Advisory Council approved the enclosed revisions to section REC-1-87 of the Rhode Island Administrative Code. Microfilm quality-control standards have thus been brought into conformity with national standards. This document contains those standards and requirements.

The regulations establish standards and guidelines for: 1) the selection of records to be microfilmed, 2) the selection of equipment and vendors, 3) the security duplication of microfilm records, and 4) the quality of the microfilming, processing, duplication, and storage processes.

These regulations take effect on January 1, 1988. After January 1, 1988, authorization will not be given to dispose of records that have been microfilmed unless the state standards have been met and certification of this is attached to the "Certificate of Records Destruction" (form RI/PRA 003). A sample of the required certificate is included.

In summary, the major points included in the new standards are:

- A. All roll microfilm must have the required targets at the beginning and end of each roll.
- B. A minimum and maximum allowable density is established. A transmission densitometer must be used to determine density.
- C. Minimum allowable resolution standards are established. A microscope must be used to determine resolution.
- D. The methylene blue test must be performed once each month to determine if residual thiosulfate concentration falls within acceptable limits.
- E. The master negative roll of microfilm must be stored under archival conditions. It is not to be used except for producing copy rolls.
- F. PRA 003 forms listing microfilmed records must be accompanied with a signed certificate of compliance with these standards.
- G. An updatable microfiche system is to be used only under special circumstances. The system must meet all microfilm specifications. Each time the microfiche is updated, a new certificate of authenticity must be added, the microfiche copy must be reproduced on silver halide film, and the expunging equipment must be rendered inoperative.

Also included herewith are samples of the targets required to be placed on all microfilm. Resolution charts may be obtained from:

AIIM
1100 Wayne Avenue, Suite 1100
Silver Spring, MD. 20910

Any questions concerning these standards and requirements, or the development of microfilm projects should be directed to:

Rhode Island State Archives and
Public Records Administration
337 Westminster Street
Providence, RI 02903

MICROFILM STANDARDS

1 a. Standards For Microfilming Public Records: Purpose

These microfilm standards have been designed to promote uniformity and quality in the production of microfilm for state and municipal governments in Rhode Island. All agencies engaged in microfilming government records must meet these standards to insure the following:

- i.** that microfilm copies contain all significant detail shown on the original record;
- ii.** that microfilm copies are useable and legible reproductions of the original record;
- iii.** that the microfilm reproduction will have the same acceptability and legal status as the original;
- iv.** that the microfilm reproduction will meet standards of archival quality.

b. Authority To Establish Microfilm Standards

Concerning the photographic reproduction of public records, RIGL 38-3-6 (k)(3) provides that the Public Records Administration shall adopt reasonable rules and regulations relating to public records including "standards for the reproduction of records for security or with the view to disposal of the original record."

2. Notice Of Intention To Microfilm Public Records

If a record series is selected to be microfilmed, notice should be given to the Public Records Administration (PRA) of such intention specifying the record series involved. Such notification will give the PRA's technical staff an opportunity to make constructive recommendations should such be necessary. This will also insure proper conformance with the statute.

3. Microfilm Standards

The following standards must be met before permission to destroy the originals is granted:

- a.** Since many factors are involved in the use of microphotography for records management, a careful analysis of each record group should be made before microfilming. Following are some of the most important factors in determining which records are to be filmed.
 - i.** Retention period and volume: since microfilming is not inexpensive, only records in large volume or with long retention periods should normally be considered. Microfilming records of shorter retention or smaller volumes may be justified due to the

need for security copies or distribution of duplicate copies of record.

ii. Rate and reference to records: records with high reference rates or unusual methods of indexing may be poor subjects for microfilming.

iii. Physical make-up of the records series: size, color, legibility and condition can affect the cost and quality of the microfilm.

b. When converting documents to microfilm, certain measures must be followed to insure quality, legality and access to information contained on the microfilm.

i. The records to be filmed must be arranged, identified and indexed to insure reasonable ease in locating individual documents.

ii. All roll film must have the following targets at the beginning of the reel: National Bureau of Standards' resolution target; density target, certificate of authenticity; camera operations certificate containing title of records filmed, filmed start file and end file (if known), reduction ratio, camera type, film type, and department or agency having custody of the records; and title target.

iii. All roll film will have the following targets at the end of each reel: camera operator's certificate, certificate of authenticity, and end of roll flasher.

iv. Where applicable, roll film should contain retake and correction targets at the beginning and end of a series of refilmed records.

v. Examples of the above targets are available from the Public Records Administration.

c. The master negative is the original reel of film produced.

i. Only a safety-base, permanent record film with a gelatin-silver halide emulsion, developed to a black and white image and meeting the standards of the American National Standards Institute:PH 1.28, PH 1.29, and PH 1.41, will be used for copies of records.

ii. For most documents, optimum density should read 1.0 to 1.20 for original first generation camera film. Acceptable standards will fall between a minimum of 0.80 and a maximum of 1.35. The supervisor must use judgment to determine the most suitable density within this range for the documents being filmed. To permit a more accurate reproduction of the original roll, each image should maintain, as far as possible, a specific density throughout the roll. Since the color of the original documents will affect the density of the image, and not all documents in a particular record series may have the same color, an average density aim point should be chosen.

- iii. A density minimum reading taken from the non-image or clear area of the film will not exceed a reading of 0.12 or manufacturer's specifications using automatic retrieval systems. Readings should be made close to the center of the film strip to avoid edge fog interference. (NOTE) Both background density and D-min density must be taken with a transmission densitometer.
- iv. A microscope having a magnification of 50X to 150X with achromatic objectives must be used to read the resolution from the National Bureau of Standards' microcopy resolution test chart. The line direction method will be used in making the determination of resolution. A minimum resolution of 80 lines per millimeter on rotary cameras and 110 lines per millimeter on planetary cameras must be obtained on first generation camera film.
- v. Thiosulfate residual content should be tested at least once a month. Only the methylene blue test method will be considered sufficiently reliable to determine archival quality. American National Standards Institute: PH 1.28 of 1973 states the following levels of thiosulfate concentration that must be observed for archival microfilm.

Limits for Thiosulfate Concentration

Classification of Films according to graininess of developed image	Maximum permissible concentration of Thiosulfate Ion (S^{2-}) in micrograms per square centimeter
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Class I

Fine-grain copying,
duplication and
printing films
(includes ordinary
microfilms)

0.7

Class 2

Medium-grain continuous-tone
camera films (negative and
reversal) and coarse-grain
x-ray films

2

- vi. A target indicating the beginning and end of retakes must be used. Retakes may be placed at the beginning or end of a roll of film and, when possible, in sequence. When computer-assisted or random retrieval methods are used, retakes may be placed on the following roll without retake targets. Placement of retakes should be decided before the start of filming and remain consistent.

vii. Splices should not be used except for adding corrections or retakes to the beginning or end of a roll. When splicing images in proper sequence within the roll, only heat-weld splicing should be considered archival. Any splices within a roll may jeopardize the legal status of the microfilm and its admissibility in court.

viii. All film will be processed to meet National Bureau of Standards PH 4.8. Dry chemical processing will not be acceptable. Film failing to meet the specified limits for thiosulfate concentration will not be acceptable.

ix. All film must be inspected for proper indexing, density, resolution and, for residual thiosulfate. Film should be free of scratches, abrasions, blemishes or other defects.

d. The original roll of film must be maintained in archival storage when the records contain information essential to the continuity of governmental operations and the protection of the rights of individuals. Any irreplaceable records having a retention period classified as permanent should be included in this category. When film is to be cut for jackets or aperture cards, the original roll may be used provided an uncut duplicate roll of silver halide film has been prepared for storage. American National Standards Institute requires film specifications for archival storage PH 1.28, PH 1.25 and PH 1.41. The following specifications must be followed for archival storage:

- i.** The relative humidity of the storage vault or room must not exceed 40 percent.
- ii.** Temperatures must not exceed 70 degrees F.
- iii.** Rapid and wide-range cycling of humidity or temperature must be avoided and in no instance exceed +/-5 percent in a 24-hour period.
- iv.** No rubber bands, tape or other foreign objects may be used to hold film on the reels.
- v.** The materials used for storage should not ignite, decompose, or develop reactive fumes or vapors.
- vi.** Film must be stored in a closed container of such inert material as metal or plastic.
- vii.** At every two-year interval, a one percent random sample should be inspected. For each biennial inspection, a different lot sample should be chosen with some samples of the previous lot reinspected. Any signs of deterioration, including signs of peeling emulsion, brittleness, molding and blemishes, may require special treatment of the microfilm to prevent loss of the record.

- e. Methods of duplication include the use of silver halide, diazo and vesicular film.
 - i. Silver halide duplication film is the only duplicating film considered suitable for producing microfilm of archival quality. Silver halide film must be used when producing copies of the original master negative intended for archival storage. Although the cost is high compared to other types of duplicating film, both negative and positive copies can be produced.
 - ii. Diazo duplication film is not considered archival in quality, and must not be used to produce master-negative copies of originals. A diazo copy will maintain the same polarity as the original master (negative to negative; positive to positive). Unexposed diazo film has a very short shelf life unless refrigerated. After exposure and processing, diazo film has an estimated usability of twenty years under ideal storage conditions. Diazo film is less expensive than silver halide film and very durable. Due to ammonia used in processing most diazo film, this type of film should not be stored with silver halide microfilm to avoid damage to archival film.
 - iii. Vesicular duplication film is not archival in quality and must not be used to produce master-negative film. Vesicular film is a reversing process film - the polarity of the copy will be reversed to that of the original master (positive to negative, negative to positive) through exposure and processing by heat. Vesicular film should be only used for short-term storage applications. However, when not fully exposed, vesicular film may develop eye-legible, cosmetic blemishes. Vesicular duplication film may also be considered suitable for distribution or working copies when archival quality is not a factor.

4. Service Contract Specifications and Technical Assistance

A state or municipal agency may wish to have its microfilming done by a private company on a service contract basis.

In considering any such arrangement, the contracting agency should be cognizant of the following points:

- 1. All contracts must meet the microfilm specifications established by the Public Records Administration.
- 2. The Public Records Administration will serve as a consultant to any state or municipal agency requesting such consultation, and will, upon request, review the microfilm service contracts prepared by state or local agencies.

5. Disposal Of Original Public Records After Microfilming

- a.** No original records may be destroyed after microfilming unless the agency obtains permission to do so from the Public Records Administration per R.I.G.L. 38-3-6(j).
- b.** Form RI/PRA 003, "Certificate of Records Destruction", may be used for this purpose. Signed certification shall accompany the form stating that the listed records have been microfilmed in accordance with the rules and regulations of this subchapter and that with the creation of these microfilm copies, the original records have ceased to have sufficient value to warrant their retention.

6. Updatable Microfiche Systems

Updatable microfiche does not meet archival standards and should be used only in special applications. Any agency considering using such a system should first contact the Public Records Administration to review the proposed application.

- a.** If permanent records are to be microfilmed and the hard copy records destroyed, a security copy must be on silver halide film and stored under archival conditions.

STATE OF RHODE ISLAND & PROVIDENCE PLANTATIONS

PUBLIC RECORDS ADMINISTRATION

MICROFILM PROCEDURES FOR PUBLIC RECORDS

The use of microfilm has proven to be one of the most effective tools for the preservation of records against time and disaster and as a tool for space conservation in public offices. As valuable as microfilm might be, its effectiveness as a working tool and its legal status as an acceptable substitute for the original record may be jeopardized unless specific, yet simple, procedures are followed in the filming, developing, and storing of the microfilm. The purpose of this document is to clearly and simply outline the filming procedures that will enable you to produce acceptable and useable microfilm according to State Records Administrator's Rules and Regulations. This is not intended to be a rule in itself, but merely a guide to aid in adhering to previously adopted rules.

Preparation of Material for Filming

Before starting a microfilm project the material to be filmed should be organized and checked for proper sequence and any misfiling. The order in which the material is filmed should be the same as the original records are maintained and serviced. This may be in chronological, alphabetical, or numerical order, or in any combination of the first three systems. Organize the material in the order you have selected and, if the material is to be destroyed after filming, remove all pins, clips, brads, or other metal objects with the proper tool to prevent tearing of the documents. If the files are to be maintained after filming remove all staples, etc., except those necessary to maintain the identity of the individual files.

Form and Filming of Targets

In filming be sure your targets stand out clearly; provide spacing in the film before and after every target. The small amount of film used is more than compensated for by the time saved in information retrieval. Remember, microfilm is supposed to be a time-saver, but it isn't if it takes minutes or hours to locate that information.

How to Prepare Targets:

Preparation of targets need not be a highly elaborate procedure. In most cases, all that is needed to make targets are a bold-tipped marking pen, plain paper, and the ability to print clearly. The only exceptions, the Certificate of Authenticity and the Camera Operator's Certificate.

Corrections and Additions to Roll Microfilm

To be a legally acceptable substitute for paper records, microfilm must be properly documented and must be maintained in roll form with no breaks or splices between the beginning and the end of the roll. To preserve the physical and legal integrity or acceptability of the film roll, special procedures must be followed in refilming and inserting improperly filmed documents.

Missing Documents - Occasionally, documents or even whole files may have been misplaced and cannot be located for filming. A target at this point tells the viewer that the file was incomplete and was not accidentally or dishonestly omitted. The following is an example:

MISSING DOCUMENTS

Those files relating to (subject) are not filmed. After complete and careful search these documents have not been located as of this date and will be filmed on a supplemental roll and properly indexed in the event that they are located.

Signed _____

Camera Operator

Blank Pages - Occasionally, numbered but otherwise blank pages are included in the body of material to be filmed. Insert a target to indicate that "pages _____ through _____" were blank and not filmed. Use this method when there are more than 2 or 3 blank pages in sequence. If there are only a few blank pages it saves time to microfilm them rather than preparing a target indicating that they were blank.

Illegible Documents - Occasionally, photostatic copies, carbon copies, badly smeared or faded documents are included in a group of records and cannot be replaced by a more legible copy or the original. In this case, insert a target explaining the illegibility so the film inspector knows that this is the best reproduction that can be obtained.

Misnumbered Pages - Insert an informational target so there is no question of error or dishonesty in the filming.

Documents Out of Order - At times, numbered material may inadvertently be filmed out of order. If discovered while the material is being filmed, space the film, insert an informational target, refilm in proper order, then resume filming.

Insert any other informational targets needed to aid identification of documents.

Errors Detected During Filming - During any filming process, the camera operator may decide that he has filmed some material incorrectly -- upside down, at the wrong light setting, folded to obscure some of the document, etc. The operator can then advance the film to provide spacing and insert a target similar to this:

<u>CORRECTION</u>										
<p>Preceding image has been repeated to assure legibility or to correct a possible error in filming document(s).</p>										

The following illustration identifies the standard steps for documenting every roll of film in correct order:

Resolution Chart	DENSITY TARGET Blank White Paper	START	Roll Number	Certificate Of Authenticity	Camera Operator's Certificate	TITLE TARGET	RECORDS	Camera Operator's Certificate	Certificate of Authenticity	END OF ROLL Please Rewind
1	2	3	4	5	6	7	-	12	13	14

- Step 1.** Film the "RESOLUTION CHART"
Standard ANSI-AIIM Rotary or Planetary Camera Test Chart
- Step 2.** Film the "DENSITY TARGET"
Use a clean sheet of 20 lb. white paper that is not watermarked
- Step 3.** Film the "START OF ROLL" flasher.
Use at least one inch letters.
- Step 4.** Film the "ROLL NUMBER" target.
Use at least two inch high numbers -- calendar numbers, etc.
- Step 5.** Film the "CERTIFICATE OF AUTHENTICITY"
May be signed and reused for projects.
- Step 6.** Film the "CAMERA OPERATOR'S CERTIFICATE"
Type on your official letterhead.
- Step 7.** Film the "TITLE TARGET"
Title of Records Series and inclusive dates or alphanumeric
Use at least one inch high letters.
- Step 8.** Advance the film one space.
Leave clear frame between documentation and records to be filmed.
- Step 9.** Film your records.

- Step 10.** Film the last page of your records
Allow enough film at end of roll for documentation and leader.
- Step 11.** Advance film one space.
Leave clear frame between records and documentation at end of roll.
- Step 12.** Film the "CAMERA OPERATOR'S CERTIFICATE" again. Revise any ending dates or other alphanumeric sequence that changed.
- Step 13.** Film the "CERTIFICATE OF AUTHENTICITY" once again.
- Step 14.** Film the "END OF ROLL" flasher.
Use at least one inch high letters.
Record no images after this flasher.
See special instructions for retakes or corrections at beginning or end of a roll of film.

Additions and Corrections to Processed Film

The purpose of film Inspection is to detect errors in the filming of records and in the processing of the exposed microfilm. When errors are detected in filming, retrieve the original documents for refilming. Previously missing documents may also be added to a processed roll of microfilm. The procedures are the same in either case.

End Of Roll	SPACE	Start Of Retake	Certificate Of Authenticity	Camera Operator's Certificate	Retake Certificate	RECORDS	Retake Certificate	Certificate Of Authenticity	End Of Retake
0	1	2	3	4	5	6	7	8	9

- Step 1.** Prepare the records to be filmed and put them in proper order, together with adequate informational targets.
- Step 2.** Film a target labeled "START OF RETAKE".
- Step 3.** Film a "CERTIFICATE OF AUTHENTICITY" as before.
- Step 4.** Film the "CAMERA OPERATOR'S CERTIFICATE" from the original film roll.
- Step 5.** Film a "RETAKE CERTIFICATE" which shows:
- Original Project Number
 - Original Roll Number
 - Material to be Retaken
 - Reason for Retakes
 - Date
 - Signature of Camera Operator

RETAKE CERTIFICATE

Retake for Project # _____ Roll # _____

Material to be Retaken:

Reason for Retakes:

Date

Signature of Camera Operator

Step 6. Film the material. Remember, spacing in the film should be provided before the beginning of any new file.

Step 7. Film the "RETAKE CERTIFICATE" again.

Step 8. Film the "CERTIFICATE OF AUTHENTICITY" again.

Step 9. Film a target labeled "END OF RETAKE".

When the rephotographed documents have been inspected they may be appended to the original roll of microfilm, and having been properly certified, they will have the same integrity and evidentiary value as they would have had on the original roll of microfilm.

START

ROLL

Certificate of Authenticity

Records Certification

I, the undersigned, do certify that the microfilm images on this reel of microfilm are complete and accurate reproductions of the original records of

(name of agency)

as accumulated during the regular course of business. It is the established policy and practice of this agency to microfilm its records for permanent file and to dispose of the original records after microfilm reproductions have been made and assigned to the agency files. All public records are scheduled and disposed of in accordance with:

Rhode Island General Law § 38-1-10 and § 38-3-6

(authorized agency representative)

(title)

(date)

State of Rhode Island and Providence Plantations
Office of the Secretary of State
Rhode Island State Archives & Public Records Administration
337 Westminster Street
Providence, RI 02903
(401) 222-2353

CERTIFICATE OF AUTHENTICITY SERVICE BUREAU

**I hereby certify
that**

(Vendor Company)

**has microfilmed the documents on this roll of film in accord with
instructions**

received from the

(Agency of Origin)

(date)

**Signature of Authorizing
Office for Vendor Company**

Title

CAMERA OPERATOR'S CERTIFICATE

NAME OF AGENCY _____

TITLE OF RECORDS _____

BEGIN/END DATES OF RECORDS _____

SEQUENCE: **ALPHABETICAL**
 NUMERICAL
 CHRONOLOGICAL
 OTHER_____

AFTER MICROFILMING, DISPOSITION OF ORIGINAL RECORDS:

DESTROY **PERMANENT RETENTION** **TRANSFER**

THE SECURITY COPY OF THIS MICROFILM IS ON FILE IN

_____.

FILM: MANUFACTURER/TRADE NAME _____

16mm

35mm

REDUCTION RATIO:_____ **CAMERA MAKE/MODEL:**_____

TYPE OF CAMERA: **ROTARY** **PLANETARY**

PROCESSOR: NAME/ADDRESS: _____

CAMERA OPERATOR:_____ **DATE OF FILMING:**_____

Signature

m/d/y

**END OF
ROLL**

PLEASE REWIND

START OF RETAKES

RETAKE CERTIFICATE

The microphotographs appearing between “Start of Retakes” and “End of Retakes” are true copies of the original documents which are illegible or were omitted during the filming.

ORIGINAL PROJECT NO. _____

ORIGINAL ROLL NO. _____

RECORDS TO BE RE-FILMED:

REASONS FOR RETAKES:

DATE:_____

SIGNATURE OF CAMERA OPERATOR _____

AGENCY:_____

**END
OF
RETAKES**

CORRECTION

**PRECEDING IMAGE HAS BEEN
REPEATED
TO ASSURE LEGIBILITY OR TO
CORRECT A POSSIBLE ERROR**

NOTE

THOSE FILES RELATING TO

**ARE NOT FILMED. AFTER COMPLETE
AND CAREFUL SEARCH THESE DOCU-
MENTS HAVE NOT BEEN LOCATED AS OF
THIS DATE AND WILL BE FILMED ON A
SUPPLEMENTAL ROLL AND PROPERLY
INDEXED IN THE EVENT THAT THEY
ARE LOCATED.**

REMARKS:_____

Signature of Camera

Operator:_____

Agency_____

(Use *Your* letterhead)

State Archivist and Public Records Administrator
Office of the Secretary of State
Rhode Island State Archives and
Public Records Administration
337 Westminster Street
Providence, RI 02903

Dear Sir/Madam:

I hereby certify that the records listed on the attached Request and Authorization for Records Disposal form[s] have been microfilmed in accordance with the microfilm specifications listed in Rhode Island Administrative Code.

Supervisor, Microfilm Unit

Date

Head of Agency or Designate

Date

**State of Rhode Island and Providence Plantations
Rhode Island State Archives & Public Records Administration**

CERTIFICATION OF RECORDS DESTRUCTION

1. Department			
2. Division		3. Date	
<p>In accordance with the Authority granted by Title 38 of the Rhode Island General Laws these records have met the legal retention requirements and are eligible for destruction.</p>			
4. Record Series Number (from schedule)	5. Record Series Title	6. Dates to/from	7. Volume
<p>8. I certify that I have reviewed the above listed records and authorize their destruction.</p> <p>Dept. Head or Records Custodian _____</p> <p>State Archivist _____ & Public Records Administrator</p>			

Signed and executed Certificate is a permanent record. (§42-8.1-10)